Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: **J12050452**

Project Name: N/A

Customer Name(s): Bill Kennedy, Melonie Martin, Wayne Chapman, Tom Johnson

Customer Address: 3195 Pine Hall Rd
Mailcode: Belews Steam Station
Belews Creek, NC 28012

Lab Contact: Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) Digitally signed by jay perkins DN: cn=jay perkins, o=Analytical Lab, ou, email=jay.perkins@duke-energy.com, c=US Date: 2012.06.15 14:24:52 -04'00' **Date:** 6/13/2012

Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2012011905	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	FGD Purge Eff
2012011906	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	EQ TANK EFF.
2012011907	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	BIOREACTOR 1 INF
2012011908	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	biOREACTOR 1 INF HG BLK
2012011909	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	BIOREACTOR 2 INF.
2012011910	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	BIOREACTOR 2 INF. HG BLANK
2012011911	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	BIOREACTOR 2 EFF.
2012011913	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	BIOREACTOR 2 EFF. HG BLANK
2012011914	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	FILTER BLANK
2012011915	BELEWS	29-May-12 8:00 AM	ILLEGIBLE	Trip Blank

10 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No
The Vendor Laboratories have been qualified by the Analytical Laboratory	Yes	

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DataBase Administrator Date: 6/13/2012

Certificate of Laboratory Analysis

Order # J12050452

Site: FGD Purge Eff
Collection Date: 29-May-12 8:00 AM

Sample #: **2012011905**
Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
INORGANIC IONS BY IC								
Bromide	**110**	mg/L		5	50	EPA 300.0	31-May-12 21:39	JAHERMA
Chloride	**7400**	mg/L		100	1000	EPA 300.0	31-May-12 21:39	JAHERMA
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**218**	ug/L		5	100	EPA 245.1	31-May-12 14:39	AGIBBS
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**233**	mg/L		0.5	10	EPA 200.7	04-Jun-12 09:55	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**149**	ug/L		20	20	EPA 200.8	31-May-12 14:21	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**146**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Chromium (Cr)	**239**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Copper (Cu)	**123**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Manganese (Mn)	**7680**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Nickel (Ni)	**212**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Selenium (Se)	**5120**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Silver (Ag)	**< 20**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
Zinc (Zn)	**260**	ug/L		20	20	EPA 200.8	05-Jun-12 12:03	DJSULL1
SELENIUM SPECIATION								
Vendor Parameter	**Complete**				1	V_AS&C		
TOTAL DISSOLVED SOLIDS								
Vendor Parameter	**Complete**				1	V_PACE		

Site: EQ TANK EFF.
Collection Date: 29-May-12 8:00 AM

Sample #: **2012011906**
Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**157**	ug/L		2.5	50	EPA 245.1	31-May-12 14:42	AGIBBS
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**243**	mg/L		0.5	10	EPA 200.7	04-Jun-12 09:59	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**88.7**	ug/L		10	10	EPA 200.8	31-May-12 14:25	KRICHAR

Certificate of Laboratory Analysis

Order # J12050452

Site: EQ TANK EFF. **Sample #: 2012011906**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**128**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Chromium (Cr)	**192**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Copper (Cu)	**99.7**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Manganese (Mn)	**7440**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Nickel (Ni)	**185**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Selenium (Se)	**3860**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Silver (Ag)	**< 20**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
Zinc (Zn)	**232**	ug/L		20	20	EPA 200.8	05-Jun-12 12:06	DJSULL1
SELENIUM SPECIATION								
Vendor Parameter	**Complete**				1	V_AS&C		

Site: BIOREACTOR 1 INF **Sample #: 2012011907**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**215**	mg/L		0.5	10	EPA 200.7	04-Jun-12 10:03	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**13.9**	ug/L		10	10	EPA 200.8	31-May-12 14:29	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Manganese (Mn)	**6510**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Nickel (Ni)	**60.7**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Selenium (Se)	**94.4**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:09	DJSULL1
SELENIUM SPECIATION								
Vendor Parameter	**Complete**				1	V_AS&C		

Certificate of Laboratory Analysis

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Order # J12050452

Site: biOREACTOR 1 INF HG BLK — **Sample #: 2012011908**
Collection Date: 29-May-12 8:00 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		

Site: BIOREACTOR 2 INF. — **Sample #: 2012011909**
Collection Date: 29-May-12 8:00 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**210**	mg/L		0.5	10	EPA 200.7	04-Jun-12 10:07	MHH7131
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Manganese (Mn)	**4820**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Nickel (Ni)	**15.1**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Selenium (Se)	**14.4**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:12	DJSULL1

Site: BIOREACTOR 2 INF. HG BLANK — **Sample #: 2012011910**
Collection Date: 29-May-12 8:00 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		

Site: BIOREACTOR 2 EFF. — **Sample #: 2012011911**
Collection Date: 29-May-12 8:00 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**201**	mg/L		0.5	10	EPA 200.7	04-Jun-12 10:11	MHH7131

Certificate of Laboratory Analysis

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Order # J12050452

Site: BIOREACTOR 2 EFF. **Sample #: 2012011911**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Manganese (Mn)	**3270**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Nickel (Ni)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Selenium (Se)	**13.7**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	05-Jun-12 12:15	DJSULL1

Site: BIOREACTOR 2 EFF. HG BLANK **Sample #: 2012011913**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631								
Vendor Parameter	**Complete**				1	V_BRAND		

Site: FILTER BLANK **Sample #: 2012011914**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	31-May-12 13:22	KRICHAR

Site: Trip Blank **Sample #: 2012011915**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**< 0.05**	mg/L		0.05	1	EPA 200.7	04-Jun-12 08:53	MHH7131

Certificate of Laboratory Analysis

Order # J12050452

Site: Trip Blank **Sample #: 2012011915**

Collection Date: 29-May-12 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Copper (Cu)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Manganese (Mn)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Nickel (Ni)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
Zinc (Zn)	**< 1**	ug/L		1	1	EPA 200.8	05-Jun-12 11:36	DJSULL1
SELENIUM SPECIATION								
Vendor Parameter	**Complete**				1	V_AS&C		

June 8, 2012

Duke Energy
ATTN: Jay Perkins
Scientific Support-Laboratory
13339 Hagers Ferry Road
Huntersville NC 28078
jcperkins@duke-energy.com
labcustomer@duke-energy.com

RE: Project DUK-HV1201 Client Project: J12050452

Dear Mr. Perkins,

On June 1, 2012, Brooks Rand Labs (BRL) received three (3) wastewater samples and three (3) corresponding field blanks. Samples were logged-in for total mercury (Hg) analysis according to the chain-of-custody form. All samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

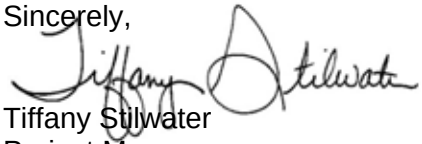
The results were blank-corrected as described in the calculations section of the applicable SOP(s) and may be evaluated using adjusted reporting limits to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific detection limits and other details.

The analysis of the second instrument blank produced an unusual peak shape and the result was elevated. This instrument blank was re-analyzed and produced a typical peak and result. The re-analysis was reported as –IBL5 in place of –IBL2.

The analysis of field blank sample *Hg Blk BioReactor 1 Inf* produced a result of 58.4 ng/L while the associated field sample, *BioReactor 1 Inf*, yielded a non-detectable result. After samples had been fully oxidized it was noted the field blank appeared darker in color whereas the field sample was clear. The BRL sample labels matched the client labels. Based on the results BRL presumed the client switched the samples in the field. Aside from concentration qualifiers, all data was reported without additional qualification and all associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, see the *Report Information* page of the report. Please feel free to contact me if you have any questions regarding this report.

Sincerely,



Tiffany Stilwater
Project Manager
tiffany@brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations /certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand, Ltd., those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses; USEPA; July 2002. These supersede all previous qualifiers ever employed by BRL.

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
BioReactor 1 Inf	1222023-01	Influent	Sample	05/29/2012	06/01/2012
Hg Blk BioReactor 1 Inf	1222023-02	DIW	Field Blank	05/29/2012	06/01/2012
BioReactor 2 Inf	1222023-03	Influent	QC Sample	05/29/2012	06/01/2012
Hg Blk BioReactor 2 Inf	1222023-04	DIW	Field Blank	05/29/2012	06/01/2012
BioReactor 2 Eff	1222023-05	Effluent	Sample	05/29/2012	06/01/2012
Hg Blk BioReactor 2 Eff	1222023-06	DIW	Field Blank	05/29/2012	06/01/2012

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	06/04/2012	06/07/2012	B120961	1200423

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
BioReactor 1 Inf										
1222023-01	Hg	Influent	T	0.15	U	0.15	0.41	ng/L	B120961	1200423
BioReactor 2 Eff										
1222023-05	Hg	Effluent	T	9.00		1.53	4.08	ng/L	B120961	1200423
BioReactor 2 Inf										
1222023-03	Hg	Influent	T	24.1		3.06	8.16	ng/L	B120961	1200423
Hg Blk BioReactor 1 Inf										
1222023-02	Hg	DIW	T	58.4		3.03	8.08	ng/L	B120961	1200423
Hg Blk BioReactor 2 Eff										
1222023-06	Hg	DIW	T	0.15	U	0.15	0.41	ng/L	B120961	1200423
Hg Blk BioReactor 2 Inf										
1222023-04	Hg	DIW	T	0.15	U	0.15	0.41	ng/L	B120961	1200423

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B120961
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B120961-SRM1	**Certified Reference Material (1221029, NIST 1641d 1000x dilution)**						
	Hg		15.68	15.86	ng/L	101% 85-115	
B120961-MS2	**Matrix Spike (1222023-03)**						
	Hg	24.10	122.4	161.0	ng/L	112% 71-125	
B120961-MSD2	**Matrix Spike Duplicate (1222023-03)**						
	Hg	24.10	122.4	158.8	ng/L	110% 71-125	1% 24

Method Blanks & Reporting Limits

Batch: B120961
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B120961-BLK1	0.36	ng/L
B120961-BLK2	0.32	ng/L
B120961-BLK3	0.45	ng/L
B120961-BLK4	0.27	ng/L

Average: 0.35 **Standard Deviation:** 0.08 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.40

Project ID: DUK-HV1201
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Instrument Calibration

Sequence: 1200423
Instrument: THG-05
Date: 06/07/2012
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1200423-IBL1		6.61	pg of Hg		
1200423-IBL3		6.37	pg of Hg		
1200423-IBL4		5.97	pg of Hg		
1200423-CAL1	25.00	25.26	pg of Hg	101%	
1200423-CAL2	100.0	97.41	pg of Hg	97%	
1200423-CAL3	500.0	511.9	pg of Hg	102%	
1200423-CAL4	2500	2501	pg of Hg	100%	
1200423-CAL5	10000	9926	pg of Hg	99%	
1200423-ICV1	1568	1586	pg of Hg	101%	85-115
1200423-CCV1	500.0	507.6	pg of Hg	102%	77-123
1200423-IBL5		6.94	pg of Hg		
1200423-CCB1		12.5	pg of Hg		
1200423-ICB1		17.32	pg of Hg		
1200423-CCV2	500.0	511.2	pg of Hg	102%	77-123
1200423-CCV3	500.0	506.8	pg of Hg	101%	77-123
1200423-CCV4	500.0	507.4	pg of Hg	101%	77-123

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PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1222023-01
Sample: BioReactor 1 Inf
Report Matrix: Influent
Sample Type: Sample
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Lab ID: 1222023-02
Sample: Hg Blk BioReactor 1 Inf
Report Matrix: DIW
Sample Type: Field Blank
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Lab ID: 1222023-03
Sample: BioReactor 2 Inf
Report Matrix: Influent
Sample Type: QC Sample
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Lab ID: 1222023-04
Sample: Hg Blk BioReactor 2 Inf
Report Matrix: DIW
Sample Type: Field Blank
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Lab ID: 1222023-05
Sample: BioReactor 2 Eff
Report Matrix: Effluent
Sample Type: Sample
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Lab ID: 1222023-06
Sample: Hg Blk BioReactor 2 Eff
Report Matrix: DIW
Sample Type: Field Blank
Collected: 05/29/2012
Received: 06/01/2012

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500 mL	71628390 10	none	n/a		Cooler

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Shipping Containers

Cooler

Received: June 1, 2012 9:15
Tracking No: 4726 7967 1672 via FedEx
Coolant Type: Ice
Temperature: 0.6 °C

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? No
Custody seals intact? No
COC present? Yes

C2 1222.023

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS #	Sample Class	Samples Originating From
J12050452	~~ASHBAG~~ other	NC___ SC___

Logged By	Date & Time	Cooler Temp (C)
cpk	5-30-12 0955	8.7

SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

[19] Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB, COPY to CLIENT

1)Project Name	Belews Creek - FGD Alternative Fuels Test Burn	2)Phone No:	
2) Client:	Melonie Martin, Wayne Chapman, Tom Johnson, Bill Kennedy	4)Fax No:	
5)Business Unit:	6)Process:	Mail Code:	
8)Oper. Unit:	9)Res. Type:	10)Resp. Center:	

AS&C PO#133241

Brooks Rand PO#141391

PACE PO #146146

...complete all appropriate non-shaded areas.

[15] Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

[16] Analyses Required

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS - Pace	Hg - 245.1		Metals*	Se, soluble		[illegible]	Cl, SO4		Se, speciation - vendor to AS&C (Important to place filled bottle back into both baggies)				
Preserv.								4	3,4		3,4	3,4					4				
2012011905		FGD Purge Eff ✓	5-29-12	08:00	[signature]		✓	1	|	+	1	1			1		1				7
06		EQ Tank Eff. ✓	|	|	|	✓			|	+	1	1									4
07		BioReactor 1 Inf ✓	|	|	|	✓			|		1	1		1			1				5
08		Hg Blk BioReactor 1 Inf	|	|	|		✓		|					1							1
09		BioReactor 2 Inf	|	|	|		✓		|		1			1							3
10		Hg Blk BioReactor 2 Inf	|	|	|		✓		|					1							1
11		BioReactor 2 Eff	|	|	|	✓			|	+	1			1			1				5
13		Hg Blk BioReactor 2 Eff	|	|	|		✓	cpk						1							1
14		Filter Blk	|	|	|		✓					1		cpk							1
15		Metals Trip Blk	|	|	|		✓				1						1	cpk			3
		ice melted						1			6	4		6			4	cpk			
		+ Hg, metals				Use the Bioreactor 2 Inf or Eff sample as the MS/MSD															
								✓			✓	✓		✓			✓				

Customer to sign & date below. Fill out from left to right.

1) Relinquished By [signature]	Date/Time 5-29-12 08:00	2) Accepted By cpk	Date/Time 5-30-12		[22]Requested Turnaround
Pa 3) Relinquished By	Date/Time	4) Accepted By [signature]	Date/Time 6/1/12 0915		14 Days ___
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time		*7 Days ___
A+B 7)Relinquished By cpk	Date/Time 5-31-12	8)Accepted By:	Date/Time		*48 Hr ___
11 9)Seal/Locked By cpk	Date/Time 5-31-12	10) Seal/Lock Opened By	Date/Time		*Other 6-7-12
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time		* Add. Cost Will Apply

Customer, IMPORTANT: Please indicate desired turnaround

Comments
* Metals=As, Ag, B, Cu, Cr, Ni, Se, Zn, Cl, Br, Mn 8 10 10

374.391

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

June 05, 2012

Program Manager
Duke Energy

,

RE: Project: J12050452
Pace Project No.: 92119559

Dear Program Manager:
Enclosed are the analytical results for sample(s) received by the laboratory on May 30, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: J12050452
Pace Project No.: 92119559

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia Certification #: 00072
West Virginia Certification #: 356
Virgina/VELAP Certification #: 460147

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SAMPLE SUMMARY

Project: J12050452
Pace Project No.: 92119559

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92119559001	**2012011905**	Water	05/29/12 08:00	05/30/12 13:47

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SAMPLE ANALYTE COUNT

Project: J12050452
Pace Project No.: 92119559

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92119559001	**2012011905**	SM 2540C	LMD	1	PASI-A

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ANALYTICAL RESULTS

Project: J12050452
Pace Project No.: 92119559

Sample: 2012011905 **Lab ID: 92119559001** Collected: 05/29/12 08:00 Received: 05/30/12 13:47 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**16100**	mg/L	500	500	1		06/01/12 00:48		

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(704)875-9092

QUALITY CONTROL DATA

Project: J12050452
Pace Project No.: 92119559

QC Batch: WET/21050
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92119559001

METHOD BLANK: 771370 Matrix: Water
Associated Lab Samples: 92119559001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	05/31/12 22:50	

LABORATORY CONTROL SAMPLE: 771371

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	246	98	80-120	

SAMPLE DUPLICATE: 771372

Parameter	Units	92119558001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	8760	8320	5	10	

SAMPLE DUPLICATE: 771373

Parameter	Units	92119703003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	61.0	57.0	7	10	

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QUALIFIERS

Project: J12050452
Pace Project No.: 92119559

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: J12050452
Pace Project No.: 92119559

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92119559001	**2012011905**	SM 2540C	WET/21050		

APPLIED SPECIATION
AND CONSULTING, LLC

18804 Northcreek Parkway Bothell, WA, 98011
Tel: (425) 483-3300 Fax: (425) 483-9818
www.appliedspeciation.com

June 8, 2012

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078
(704) 875-5245

Project: Belews Creek – FGD Alternate Fuels Test Burn (LIMS # J12050452)

Dear Mr. Perkins,

Attached is the report associated with four (4) aqueous samples submitted for selenium speciation analysis on May 31, 2012. The samples were received in a sealed cooler at 0.0°C on June 1, 2012. Selenium speciation analysis was performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078

Project: Belews Creek – FGD Alternate Fuels Test Burn (LIMS # J12050452)

June 8, 2012

1. Sample Reception

Four (4) aqueous samples in 125mL HDPE bottles (provided by Applied Speciation and Consulting) were submitted for selenium speciation analysis on May 31, 2012. The samples were received on June 1, 2012 in a sealed container at 0.0°C.

The sample listed as "BioReactor 2 Eff" on the chain of custody form was not included in the sample shipment. An alternate sample labeled as "EQ Tank Eff" was included in the shipment but no analysis was requested for it. The client was informed of the discrepancy and instructed Applied Speciation to perform selenium speciation analysis on the alternate sample.

The samples were received in a laminar flow clean hood, void of trace metals contamination and ultra-violet radiation, and was designated a discrete sample identifier. An aliquot of each sample was filtered (0.45µm) and each filtrate was stored in a secure, monitored cryofreezer (maintained at a temperature of -80^{o}C) until selenium speciation analysis could be performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS).

2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

Selenium Speciation Analysis by IC-ICP-CRC-MS Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm) and injected directly into a sealed autosampler vial. No further sample preparation was performed as any chemical alteration of a sample may shift the equilibrium of the system, resulting in changes in speciation ratios.

3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of each analytical day. All calibration curves, associated with each species of interest, are standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

Selenium Speciation Analysis by IC-ICP-CRC-MS Each sample for selenium speciation analysis was analyzed by ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS) on June 5, 2012. An aliquot of each sample is injected onto an anion exchange column and mobilized by a basic (pH > 7) gradient. The eluting selenium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (CRC) containing a reaction gas which preferentially reacts with interfering ions of the same target mass to charge ratios (m/z). A solid-state detector detects ions transmitted through the mass analyzer and the resulting current is processed by a data handling system.

Retention times for each eluting species are compared to known standards for species identification.

4. Analytical Issues

The overall analyses went well and no significant analytical issues were encountered. All quality control parameters associated with this sample were within acceptance limits.

The estimated method detection limits (eMDLs) for selenite, selenate, and selenocyanate are generated from replicate analyses of the lowest standard in the calibration curve. Not all selenium species are present in preparation blanks; therefore, eMDL calculations based on preparation blanks are artificially biased low.

The eMDL for methylseleninic acid and selenomethionine is calculated from the average eMDL of selenite, selenate, and selenocyanate. The calibration does not contain methylseleninic acid or selenomethionine due to impurities in these standards which would bias the results for other selenium species.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy
Project Name: Belews Creek - FGD Alternate Fuels Test Burn
Contact: Jay Perkins
LIMS #J12050452

Date: June 8, 2012
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Se(IV)	Se(VI)	SeCN	MeSe(IV)	SeMe	Unknown Se Species (n)
FGD Purge Eff	58.4	63.5	ND (<0.45)	ND (<0.59)	ND (<0.59)	0 (0)
EQ Tank Eff	23.9	59.8	ND (<0.45)	ND (<0.59)	ND (<0.59)	0 (0)
BioReactor 1 Inf	15.9	57.2	ND (<0.11)	2.00	ND (<0.15)	0 (0)
Metals Trip Blk	ND (<0.016)	ND (<0.050)	ND (<0.023)	ND (<0.030)	ND (<0.030)	0 (0)

All results reflect the applied dilution and are reported in µg/L
ND = Not detected at the applied dilution
SeCN = Selenocyanate
MeSe(IV) = Methylseleninic acid
SeMe = Selenomethionine
Unknown Se Species = Total concentration of all unknown Se species observed by IC-ICP-MS
n = number of unknown Se species observed

Selenium Speciation Results for Duke Energy
Project Name: Belews Creek - FGD Alternate Fuels Test Burn
Contact: Jay Perkins
LIMS #J12050452

Date: June 8, 2012
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Quality Control Summary - Preparation Blank Summary

Analyte (µg/L)	PBW1	PBW2	PBW3	PBW4	Mean	StdDev	eMDL*	eMDL 10x	eMDL 50x	eMDL 200x
Se(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.016	0.082	0.33
Se(VI)	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.050	0.25	1.00
SeCN	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.023	0.11	0.45
MeSe(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.030	0.15	0.59
SeMe	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.030	0.15	0.59

eMDL = Estimated Method Detection Limit
*Please see narrative regarding eMDL calculations

Quality Control Summary - Certified Reference Materials

Analyte (µg/L)	CRM	True Value	Result	Recovery
Se(IV)	LCS	9.57	9.96	104.0
Se(VI)	LCS	9.48	9.37	98.9
SeCN	LCS	8.92	8.73	97.9
MeSe(IV)	LCS	6.47	5.70	88.1
SeMe	LCS	9.32	8.79	94.3

Selenium Speciation Results for Duke Energy
Project Name: Belews Creek - FGD Alternate Fuels Test Burn
Contact: Jay Perkins
LIMS #J12050452

Date: June 8, 2012
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Duplicates

Analyte (µg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
Se(IV)	Batch QC	46.21	45.82	46.02	0.9
Se(VI)	Batch QC	64.75	63.22	63.99	2.4
SeCN	Batch QC	ND (<0.45)	ND (<0.45)	NC	NC
MeSe(IV)	Batch QC	ND (<0.15)	ND (<0.15)	NC	NC
SeMe	Batch QC	ND (<0.15)	ND (<0.15)	NC	NC

ND = Not detected at the applied dilution
NC = Value was not calculated due to one or more concentrations below the eMDL

Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate

Analyte (µg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
Se(IV)	Batch QC	1112	1892	166.0	1112	1900	166.7	0.4
Se(VI)	Batch QC	1009	1168	109.4	1009	1183	110.9	1.3
SeCN	Batch QC	915.0	462.9	50.6*	915.0	470.7	51.4*	1.7

*The low recovery is attributed to matrix induced species conversion

① - Sample not marked on COC. NGE 6/1/12 ② Samples not rec'd in cooler NGE 6/1/12

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Page 2 of 7

Page 1 of 2

DISTRIBUTION ORIGINAL to LAB, COPY to CLIENT

Duke Energy

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13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS # J12050452 | Sample Class: other | Samples Originating From: NC ___ SC ___
Logged By: cpk | Date & Time: 5-30-12 0955 | SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___
Cooler Temp (C): 8.7

1) Project Name: Belews Creek - FGD
2) Phone No:
2) Client: Melonie Martin, Wayne Chapman, Tom Johnson, Bill Kennedy
4) Fax No:
5) Business Unit:
6) Process:
Mail Code:
8) Oper. Unit:
9) Res. Type:
10) Resp. Center:

AS&C PO#133241

Brooks Rand PO#141391

PACE PO #146146

complete all appropriate non-shaded areas.

16 Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

16 Analyses Required

Lab ID (LAB USE ONLY)	Se Speciation Bottle ID	13 Sample Description or ID	Date	Time	Signature	17 Comp.	18 Grab	TDS - Pace	Hg - 245.1		Metals*	Se, soluble	Hg 1631 V_B...	Cl, SO4		Se, speciation - vendor to AS&C (Important to place filled bottle back into both baggies)					
Preserv.								4	3,4		3,4	3,4				4					
2012011905		FGD Purge Eff ✓	5-29-12	08:00	[signature]		✓	1		+	1	1		1		1					7
① 06		EQ Tank Eff. ✓				✓				+	1	1									4
07		BioReactor 1 Inf ✓				✓					1	1	1			1					5
08		Hg Blk BioReactor 1 Inf					✓						1								1
09		BioReactor 2 Inf					✓				1		1								3
10		Hg Blk BioReactor 2 Inf					✓						1								1
② 11		BioReactor 2 Eff				✓				+	1		1			1					5
13		Hg Blk BioReactor 2 Eff					✓						1								1
14		Filter Blk					✓					1									1
15		Metals Trip Blk					✓				1					1					3
		ice melted						1			6	4	6			4					
		+ Hg, metals						✓			✓	✓	✓			✓					

Use the BioReactor 2 Inf or Eff sample as the MS/MSD

1) Relinquished By: [signature]	Date/Time: 5-29-12 08:00	2) Accepted By: cpk	Date/Time: 5-30-12
3) Relinquished By:	Date/Time	4) Accepted By: Darcy Cullivan	Date/Time: 6/1/12 10AM Temp 0.0°C
5) Relinquished By:	Date/Time	6) Accepted By:	Date/Time
7) Relinquished By: cpk	Date/Time: 5-31-12	8) Accepted By:	Date/Time
9) Seal/Locked By: cpk	Date/Time: 5-31-12	10) Seal/Lock Opened By:	Date/Time
11) Seal/Locked By:	Date/Time	12) Seal/Lock Opened By:	Date/Time

Comments: * Metals=As, Ag, B, Cu, Cr, Ni, Se, Zn, Cl, Br, Mn

22 Requested Turnaround
14 Days ______
*7 Days ______
*48 Hr ______
*Other 6-7-12
* Add. Cost Will Apply

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy SM

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

LIMS # J12050452 | Sample Class: ~~ASTMBAS~~ other | Samples Originating From | NC ___ SC ___

Logged By: cpk | Date & Time: 5-30-12 0955 | Cooler Temp (C): 8.7

SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

[19]Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

[1]Project Name: Belews Creek - FGD Alternative Fuels Test Burn		[2]Phone No:
[2] Client: Melonie Martin, Wayne Chapman, Tom Johnson, Bill Kennedy		[4]Fax No:
[5]Business Unit:	[6]Process:	Mail Code:
[8]Oper. Unit:	[9]Res. Type:	[10]Resp. Center:

AS&C PO#133241

Brooks Rand PO#141391

PACE PO #146146

Please complete all appropriate non-shaded areas.

[15]Preserv.: 1=HCl 2=H_2SO_4 3=HNO_3 4=Ice 5=None

[16]Analyses Required

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS	Hg - 245.1	Metals*	Se, soluble	Hg 1631 V_Brand	Cl, SO4	Se, speciation - vendor to AS&C (Important to place filled bottle back into both baggies)	
2012011905		FGD Purge Eff	5-29-12	0800			✓	1		+ 1	1		1	1	7
06		EQ Tank Eff. ✓				✓				+ 1	1			1 cpk	4
07		BioReactor 1 Inf ✓				✓				1	1	1		1	5
08		Hg Blk BioReactor 1 Inf					/					1			1
09		BioReactor 2 Inf					✓			1		1			3
10		Hg Blk BioReactor 2 Inf					✓					1			1
11		BioReactor 2 Eff				✓				+ 1		1		* not collected	5
13		Hg Blk BioReactor 2 Eff					✓	cpk				1			1
14		Filter Blk					✓				1	cpk			1
15		Metals Trip Blk					✓			1		cpk		1 cpk	3
		ice melted + Hg, metals						1		6	4	6		4	

Sampling conducted: 2nd and 4th Monday

Use the Bioreactor 2 Inf or Eff sample as the MS/MSD

Customer to complete appropriate columns to right.

Customer to sign & date below - fill out from left to right.

1) Relinquished By: [signature]	Date/Time: 5-29-12 0800	2) Accepted By: cpk	Date/Time: 5-30-12
3) Relinquished By: Fedex	Date/Time: 5-30-12 1330	4) Accepted By: [signature]	Date/Time: 5-30-12 1330
5) Relinquished By:	Date/Time:	6) Accepted By:	Date/Time:
7) Relinquished By: cpk	Date/Time: 5-31-12	8) Accepted By:	Date/Time:
9) Seal/Locked By: cpk	Date/Time: 5-31-12	10) Seal/Lock Opened By:	Date/Time:
11) Seal/Locked By:	Date/Time:	12) Seal/Lock Opened By:	Date/Time:

Customer, IMPORTANT! Please indicate desired turnaround.

[22]Requested Turnaround
14 Days ___
*7 Days ___
*48 Hr ___
*Other 6-7-12
* Add. Cost Will Apply

Comments: * Metals=As, Ag, B, Cu, Cr, Ni, Se, Zn, Cl, Br, Mn

374, 391